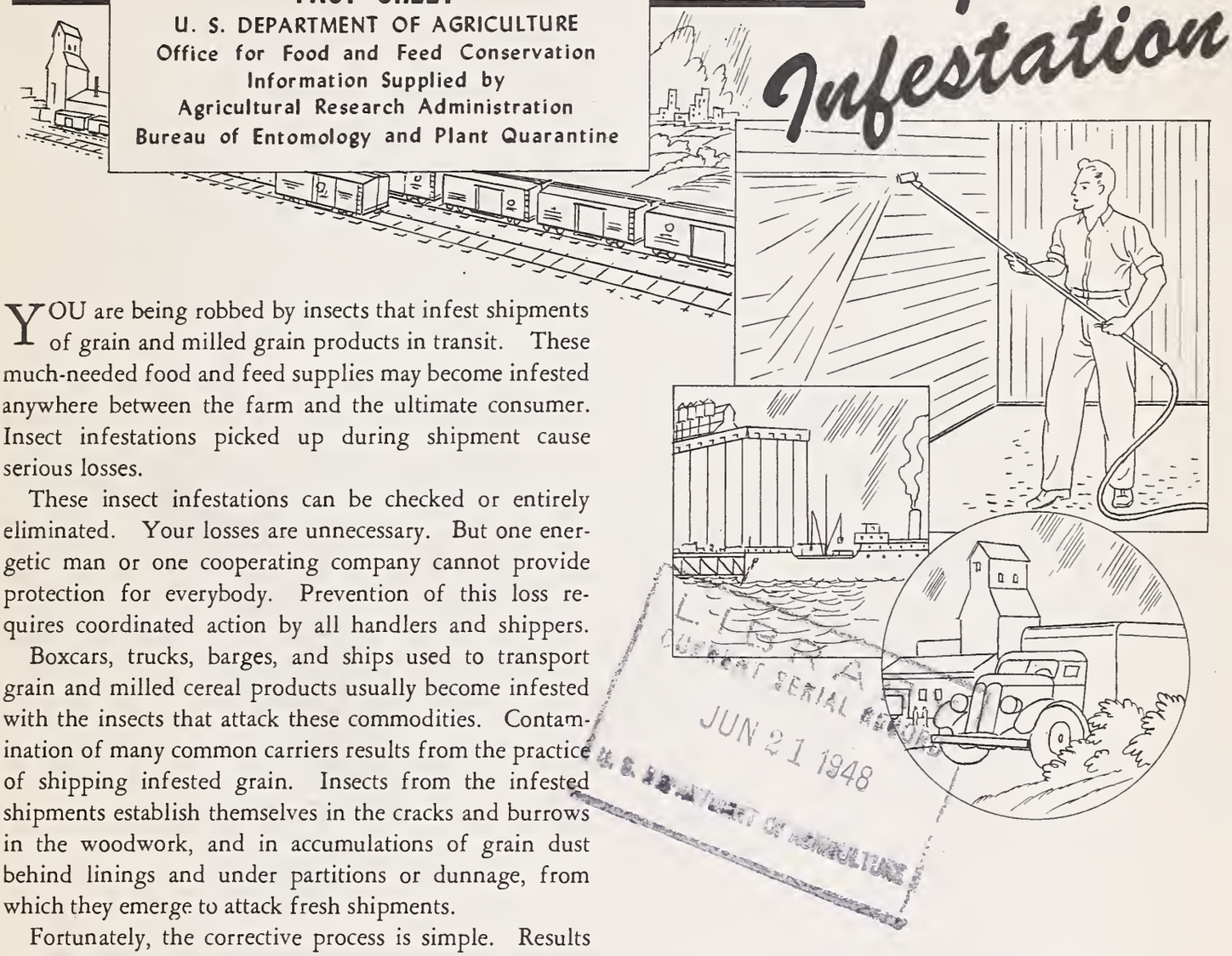
SAVE GRAIN IN TRANSIT · *Prevent Insect Infestation*

FACT SHEET
U. S. DEPARTMENT OF AGRICULTURE
Office for Food and Feed Conservation
Information Supplied by
Agricultural Research Administration
Bureau of Entomology and Plant Quarantine



YOU are being robbed by insects that infest shipments of grain and milled grain products in transit. These much-needed food and feed supplies may become infested anywhere between the farm and the ultimate consumer. Insect infestations picked up during shipment cause serious losses.

These insect infestations can be checked or entirely eliminated. Your losses are unnecessary. But one energetic man or one cooperating company cannot provide protection for everybody. Prevention of this loss requires coordinated action by all handlers and shippers.

Boxcars, trucks, barges, and ships used to transport grain and milled cereal products usually become infested with the insects that attack these commodities. Contamination of many common carriers results from the practice of shipping infested grain. Insects from the infested shipments establish themselves in the cracks and burrows in the woodwork, and in accumulations of grain dust behind linings and under partitions or dunnage, from which they emerge to attack fresh shipments.

Fortunately, the corrective process is simple. Results of research into this problem suggest a seven-point control program which will reduce and eliminate insect infestation of grain and milled cereals in transit.

The seven-point attack on insect infestation:

1. Inspect products in storage before shipment and ship only insect-free products.
2. Package to prevent insect invasion.
3. Avoid mixed-lot shipments.
4. Isolate infested products from fresh supplies in transit.
5. Clean, spray, and inspect boxcars and trucks.
6. Clean, spray, or fumigate, and inspect holds of barges and ships.
7. Inspect and, when necessary, treat all food and grain shipments upon arrival at destination.

Grain Handlers *Should:*

Ship Only Insect-Free Products

If grain or milled products are infested before delivery to the carrier, they will infest the railway cars, the trucks, the barges, and the ships used to transport them and thus create an unnecessary hazard to future shipments. Grain or other products should be inspected before delivery to a common carrier and, if found infested, should be fumigated or otherwise treated to destroy infestation before shipment. *Railroads should be notified immediately when cars are known to be infested or to have carried shipments of infested grain.* In all cases, the local agent should be advised, in writing. If the car is being loaded out, the agent at destination also should be notified.

Grain Processors *Should:*

Package to Prevent Invasion

Substantial, well-sealed paper bags and cartons will afford cereal products considerable protection. All seams of paper bags should be cemented. Sewed tops should be protected by strips of gummed tape or other covering to prevent larva from entering via the needle holes. A properly applied wet-wrap paper covering on cartons will eliminate all openings. Improperly sealed paper bags, fabric bags, and cartons will permit easy infestation. Use of fabric or paper bags that have been impregnated with nonpoisonous insecticides or repellents will provide added protection against invasion.

Mills and Railroads *Should:*

Avoid Mixed-Lot Shipments

The common practice of filling out a carload shipment with different products should be avoided. If one product is infested, the remainder of the carload is in danger of contamination. In particular, mills and railroads should avoid shipping flour and animal feeds in the same car because of the difficulty of manufacturing feeds that are insect free.

All Grain Handlers *Should:*

Isolate Infested Products

Where truck deliveries of flour and milled cereal products are made to the trade, there should be provision for segregation of fresh supplies from items being returned to the mill because they were found to carry insect infestations. This precaution will tend to eliminate contamination of fresh supplies. It will also tend to eliminate contamination of the truck itself. When a truck must be used for both purposes it should be equipped with a metal box or special metal compartment in which to segregate all infested products. All trucks and metal boxes used in hauling infested products should be thoroughly cleaned immediately after the damaged products are delivered. All infested products should be condemned, withheld from use as human food, and disposed of promptly so they will not contaminate uninfested products.

Railroads *Should:*

Clean, Spray, and Inspect Boxcars

Boxcars used for the transportation of grain and foodstuffs *susceptible* to insect damage should be individually inspected before loading. Unless they are clean and free from insects, contamination of the shipment is likely. Cars should be swept and blown out with compressed air between shipments. Spraying with a one-percent DDT solution twice a year will materially reduce insect infestation concealed in the woodwork or in the accumulation of grain dust behind the car linings.

To prevent indiscriminate spraying of cars with DDT by shippers, this material should be applied only by the railroads. Individual shippers should spray with materials that are nontoxic to warm-blooded animals. Sprays containing either 0.8 percent pyrethrins or a combination of piperonyl butoxide and pyrethrins are recommended. All cars should be lined with paper before they are loaded with flour. This will protect the flour from spray deposits on the floors and walls of the cars.

Ship and Barge Lines *Should:*

Clean, Spray or Fumigate, and Inspect Holds

To prevent infestation of water-borne shipments of food products, every cargo vessel should be thoroughly cleaned, sprayed or fumigated, and inspected before loading. Barges and ships are well adapted to fumigation because of their tight hull construction. Hydrocyanic acid and methyl bromide are effective in this work. Since they are poisonous gases, the crew must vacate the vessel during fumigation and the airing period. **Fumigation should be done only by trained personnel or a competent pest-control operator.** This treatment may require 2 days or more.

If time is a pressing factor, the application of a residual spray is an alternative. Use a spray containing 1 percent DDT or chlordane plus 5 percent of a good "knockdown" agent, such as pyrethrum (20–1 extract) or a thiocyanate. Sprays that are nontoxic to warm-blooded animals are also effective for this purpose. Sprays containing either 0.8 percent pyrethrins or a combination of piperonyl butoxide and pyrethrins are recommended.

All Grain Handlers *Should:*

Inspect Shipments at Destination

All food shipments should be inspected with care immediately upon arrival at destination. Insects seen crawling over packages and bags are visible evidence of infestation. Detection of less obvious infestation, however, may require careful sifting of representative samples of milled cereals, such as flour. Infested products should be segregated at once and fumigated as soon as possible before they are carried into the warehouses or processing plants. For treating commodities in bulk, methyl bromide is the most practical fumigant. **Fumigation should be done only by trained personnel or a competent pest-control operator.**

YOU CAN GET A COORDINATED PROGRAM BY WORKING WITH:

Your railroads.	Your shipping services.
Your truckers.	Your own industry.

REMEMBER: Only through the cooperation of all handlers and shippers can YOU be assured against losses in bulk, and losses in dollars, in the grain and food products used in your business.

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